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ABSTRACT

Since the nation's schools can play a major role in encouraging energy conservation, an energy curriculum should cover four objectives: (1) generating an awareness of energy concerns, (2) fostering the development of responsible energy use habits, (3) preparing students for energy-related careers, and (4) creating an understanding of international energy issues. Presented in this report is a primer for school districts interested in developing an energy curriculum. It focuses on objectives, benefits, successful programs, and steps school boards can take to implement programs and gain community support. Also included are appendices containing a bibliography of energy education materials, a state-by-state listing of contacts and resources, and a guide to federal assistance. (Author/WB)

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Energy Education and the School Curriculum

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Energy Education and the School Curriculum

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Energy Education
and the School Curriculum

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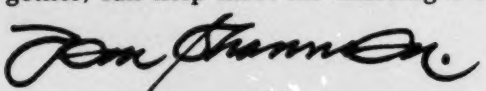
Foreword

Energy education is not what it used to be. There was a time when teaching students about energy meant discussing potential and kinetic energy and trying to explain Einstein's Theory of Relativity. Responsibility for energy units was given to the science teachers, and students diligently tried to understand how all the new words and intricate diagrams related to their lives. Few people other than science buffs and future physicists thought about the topic of energy outside of the classroom.

Today, everyone is talking about energy. It is a national—indeed, worldwide—concern and economic and political priority. When people mention energy, they no longer think of high school science classes; rather, thoughts turn to gasoline shortages, lowered thermostats, the Middle East, and myriad other related topics.

Schools should be and are playing an increasingly significant role in shaping new attitudes and habits among students with regard to energy sources and energy utilization. Moreover, schools can be and are influencing the public attitude and action directly and indirectly: directly through school activities and events that serve to inform local citizens, and indirectly through the knowledge that is transmitted by students to their families and others.

This report serves as a primer for energy education curriculum development. Attention is invited to the need for and objectives of energy education, the benefits derived from an energy education program, program developments within education, the adequacies and inadequacies of available instructional materials, and major sources of curricular and financial assistance. Accordingly, this report should be of special value to school board members, administrators, curriculum specialists, and teachers—all of whom, working together, can help meet the challenges of a world with limited energy sources.



Thomas A. Shannon
Executive Director
National School Boards Association

The Need for Energy Education

The United States, and much of the world, faces an ongoing and worsening energy crisis. Fuel supplies are decreasing, fuel prices are increasing, and international relationships are wavering. Yet, many Americans' awareness of the situation and their use of energy remain much as they were when energy resources were in abundance.

The following data about the United States' supply and use of energy point to the need for a nationwide educational program to help people understand why and how to conserve energy and to prepare them for an energy-scarce future:

- In the 1970s, energy consumption in the U.S. more than doubled. While the U.S. comprises 6% of the world's population, it now uses about 33% of the world's energy supplies. On the average, an American uses 30% more energy per year than a Swede and twice as much energy per year as a German or a Russian.[1]
- At the same time it is increasing its energy consumption, the U.S. is decreasing its energy production and becoming more dependent on foreign resources. Currently, the U.S. uses oil for about half of its total energy needs; more than 45% of that oil is imported. The scarcity of oil in this country (the U.S. holds 6% of the world's oil reserves whereas the Middle East holds 55%) makes the United States vulnerable to the price hikes and oil embargos of oil-producing nations.[2]
- Although people have been predicting energy shortages since the 1960s, most people have been either unaware of or unconcerned with the seriousness of the problem until recently. In 1977, 88% of the people responding to a Gallup poll believed there was no energy crisis or at least not a serious one, and 27% believed the U.S. produced enough oil to fill its needs.[3] A survey of young adults (26-35 years old), conducted the same year, showed that they were more concerned about the energy situation than were their elders, but that they (the young adults) did not know what they could do about the declining energy supply.[4]

Developments such as these have prompted people to look to schools as both models of conservation and centers of energy education. Progress is being made in both areas, but it is neither as rapid nor as widespread as economic and environmental analysts believe it should be.

With respect to conservation of energy, the most widely used measures by school personnel have been lowering temperatures; using more natural light and less artificial light; and conserving gasoline by encouraging faculty car pools, discouraging student driving, and curtailing field trips to distant places.[5]

A 1979 national survey showed that over a five-year period, school districts reduced their energy consumption by 35%,[6] but engineers agree that many schools could cut back another 30% in their use of energy without investing in major equipment or remodeling. Because energy expenses comprise about 3% of a school budget, schools could be wasting at least one cent of every school dollar if they do not further reduce their use of energy.[7] (Information and materials on energy conservation in the schools may be obtained from

the Office of Energy Conservation of the respective state education departments or by contacting the Energy and Education Action Center, Room 514, Reporters Building, 7th and D Streets, S.W., Washington, D.C. 20202, phone 202/472-7777.)

Conservation efforts within the school building and within the realm of school transportation provide students with opportunities to observe what can be done to save energy. Educational programs that address both energy awareness and energy efficiency take students beyond observation to learning about, understanding, and experiencing energy development and conservation. Through increased attention to energy education, schools can make a commitment to the future. Schools can help change attitudes, prepare youth and adults for new roles in the work force, teach new energy behavior, and raise the knowledge which today's and tomorrow's citizens bring to the public dialogue.

The Objectives of Energy Education

The long-range goal of energy education is to produce an energy-informed citizenry. Students and citizens must not only understand the need for wise use of energy but also be equipped to make choices among energy options and be aware of career opportunities. In working to meet this goal, there are four major objectives: (1) to create awareness; (2) to change or develop habits; (3) to train for careers; and (4) to address international energy issues. The final test of the success of energy education will be the behavior of the student-citizens in the 1980s and beyond.

Creating awareness

Energy education promotes a strong awareness of the need to conserve energy and of the available alternate energy sources. Students learn about the current energy situation and what it is expected to be like in the future. They analyze their own observations and feelings about what is going on around them, and they examine how they personally are affected by the political and economic energy picture. After discussing the energy efficiency of various activities, appliances, and equipment, students determine which alternative sources of energy are most efficient. An awareness of energy issues is the foundation for other energy-related objectives.

Changing or developing habits

Because of the energy shortage, people are being asked—and will continue to be asked—to conserve as much energy as possible. This means that many will have to change their traditional life styles. Through educational materials and experiences, students are encouraged to practice energy conservation behaviors in all aspects of their lives. For example, students are taught how to set thermostats for efficient operation, how to maintain their cars for maximum gas mileage, how to dress for warm and for cold weather, and how to use electricity most efficiently. By learning new energy habits now, people will be better able to cope with a limited amount of energy in the future and will enhance the availability of energy to meet actual necessities.

Training for careers

An emphasis on energy in career education programs is essential if the energy situation is to improve. Forecasters predict that people will be needed to maintain and refurbish old buildings in order to make them energy efficient, to build and evaluate solar and wind generators, to develop new mining technology, to plan energy-efficient cities, and to control environmental pollution. As a result of such predictions, students are being directed toward professions that will incorporate the newest scientific and technological advances. The following types of positions are examples of those that will be needed in an energy-conscious society:

- Architects—to design energy-efficient facilities;
- Chemical engineers—to attend to fuel manufacturing;
- Civil engineers—to design refineries, generating plants, mining facilities, and power transmission lines;

- Environmental engineers—to protect the environment from the use and misuse of energy;
- Geologists—to search for and analyze new energy sources;
- Lawyers—to represent clients in the conflicts that will inevitably arise over how energy will be used and by whom.[8]

Addressing international energy issues

On an international level, the objective of energy education is to teach students how they can contribute to the conservation goals of the world. The United States is only one of many nations that face fossil-fuels shortages and the responsibility of developing alternate energy sources. By conserving energy in schools, homes, and businesses, and by preparing for energy-related careers, Americans do their share to help ease the world's energy dilemma. And, in the process of addressing energy issues, students learn about the practical aspects of the interdependency of nations and the role of the United States in the world's production, use, and conservation of energy.

The Benefits of Energy Education

Energy-education programs can result in benefits to the community as well as to individual students. Furthermore, school buildings can be made more energy efficient as a result of the program's assignments and activities. These are illustrated with examples in the following paragraphs.

Students can help their communities

An obvious way in which an energy-education program in the schools can help the community is through intergenerational learning. Many energy-education projects, such as conducting energy audits and analyzing personal use of energy, extend beyond the students to their families and neighbors. Teachers and administrators who have run such programs report that student interaction with people outside the schools has helped both students and adults become more aware of the energy shortage and what they can do to conserve energy in their homes and community buildings. The net result has been lower fuel bills for homeowners, businesspeople, and school districts.

For example, physics students in a New Jersey high school in 1976 recommended to the board of education ways in which their school could reduce its energy consumption by ten percent. This was an outgrowth of the energy-conservation project that has been an integral part of the school's physics curriculum since 1969.[9]

Another example of students helping their schools save money occurred in a Colorado elementary school as a result of a sixth-grade class project. In 1979, the children built four solar generators (for a cost of $174) that are now used to supply heat for their classroom. In addition to providing heat, the generators also serve as a learning tool for other students by virtue of their location on the playground (rather than the roof of the school building) because they can be examined and are readily accessible to future classes. The amount of money the generators saved the school in heating costs is not known since the entire school building is heated by a boiler and each room is thermostatically controlled. The teacher in charge of the project, however, points out that the thermostat in his classroom is turned significantly lower than those in other classrooms.[10]

Whether conducting energy audits in private homes or public buildings, or whether participating in other community projects, students share much of what they learn during conversations with family and non-family members.

Communities can help their students

Community residents can help students by being available to them as resources. Local businesses and neighborhoods can provide students with learning experiences unmatched by classroom simulations. Example: a field trip to a local energy-efficient building. By seeing how a business or a home has been designed or remodeled to conserve energy, students are better able to understand how energy conservation can be a natural way of life.

Students can also tour power plants to watch how energy is produced and transmitted. This can give students a better understanding of what happens to potential energy before it can be used for everyday necessities.

When representatives of local businesses and various energy advocacy groups are invited to the schools to talk about their positions, students are exposed to different—sometimes opposing—viewpoints. The students are thus challenged to question the legitimacy of the speakers' arguments. At the same time that they are learning about the pros and cons of energy sources and energy-related behaviors, students are also learning about the current concerns and developments relevant to their local community.

Another way in which citizens can help students is by supporting and sharing in the outcomes of energy projects. For example, persons viewing student-developed projects on display at science fairs, supermarkets, or shopping centers can help motivate students to continue working toward energy conservation and energy-related careers. Newspaper, radio, and television coverage of the student-run energy events can further stimulate students' interest and enthusiasm.

A way in which communities can show their support of energy education is by helping to celebrate National Energy Education Day (NEED). The NEED celebration, scheduled for each March, originated from the efforts of a single school district's approach to energy education and was based on the belief that energy education should be taught at both the cognitive and affective levels (i.e., knowledge and behavior). This approach to energy education has received the endorsement of the United States Congress and the President. Through yearlong preparation for NEED—including rehearsing for plays, building energy exhibits, and planning special events—students are afforded the opportunity to learn about energy, work with adult organizations on community projects, and receive reinforcement in the form of recognition for what they have learned and accomplished. (For more information on NEED, contact The National School Boards Association, 1055 Thomas Jefferson St., N.W., Suite 600, Washington, D.C. 20007, Phone: 202/337-7666.)

School boards can encourage various members of the community to be active in energy education in the following ways:

- Boards can invite student governments, faculty associations, PTAs, and civic groups to adopt resolutions calling for participation in energy education.
- Boards, alone or through their state associations, can call upon state government agencies to assist with energy education.
- Boards can talk with citizens and educators about energy issues. For example, discussions may be on the energy programs already being used in their district, ways in which schools can conserve energy, and methods of teaching students how to practice conservation.
- Boards can encourage citizens in their community to become involved with energy education at state and national levels.

School buildings can be used as learning tools

The nature of energy education allows for schools literally to be learning tools as well as centers of education. Hands-on experience with energy conservation can be realized, for example, when studying how to conduct energy audits. By conducting an energy audit of their school, students can help identify energy-conservation measures to be followed within the building.

Another way in which students and schools, alike, can benefit is by allowing students to build alternate energy receptors such as solar energy units, for the building. The students can learn about energy and energy-related careers while developing their cognitive as well as manual skills. The schools, in turn, will save money because they will use less fossil fuels when the new energy units are installed.

Materials and Programs

Persons interested in implementing or expanding energy education programs need not start from ground zero. A variety of materials already exists. Likewise, descriptions of locally-designed energy education programs are available. By building on the experiences of others and by carefully selecting currently available materials, the developers of new programs can expedite their work substantially.

Choosing materials

During the past few years, government agencies, commercial publishing companies, non-profit associations, and oil and other energy industries have been producing materials for use in energy-education classes. Depending on the needs and wants of each school district, ready-made curriculum materials are currently available for all grade levels and for inservice education workshops. The materials range from general suggestions to detailed lesson plans, from written materials to audio-visual presentations, and from free to expensive items. An annotated bibliography of selected materials and information on how to order them appears as Appendix A to this report.

When considering curriculum materials for use in the classroom, differences among materials produced by commercial publishers, non-profit organizations, and industries should be taken into account. Some questions to ask:

1. Do the materials candidly explore the pros and cons of using different kinds of energy sources?
2. Do the materials promote one form of energy in particular?
3. Are the materials more promotional than educational? (i.e., Do the publishers seem to have a vested interest in promoting their own cause?)
4. Are the materials up-to-date?
5. Are the materials appealing enough to maintain students' interest?
6. Is the cost (if any) of the materials affordable?
7. Who designed and wrote the materials? (i.e., Were the materials written by businesspeople, educators, energy professionals, etc.?)

If materials are biased toward a certain form of energy or a particular industry or company, the materials need not necessarily be rejected. In fact, students exposed to a variety of such materials can begin to recognize the marketing strategies and persuasive appeals and, hence, be less susceptible to them in the future.

Currently, available materials do not address all aspects of energy-education equally. There is more emphasis on creating energy awareness and positive energy-conservation habits than there is on preparing students for energy-related careers or understanding global relationships. Nonetheless, the literature supports the position that early grades should concentrate on energy awareness whereas later grades should prepare students for energy-related careers.

Curriculum materials that have been developed thus far are directed toward elementary grades, with an emphasis on grades 4 through 6. For children in these grades, a variety of teaching materials are available, such as charts, posters, films, worksheets, home projects, games, and comic books.

For high-school students, most of the available materials are either audio-visual or background information for individual or group projects.

For teachers, a few complete inservice training programs have been designed, such as the *Energy Education Workshop Handbook* which was developed by the National Science Teachers Association. For the most part, though, current "inservice materials" are limited to indexes, detailing the types and sources of publications and films that are available.

The curriculum materials that are presently available contain both passive and active activities. For example, students may be asked to answer energy quizzes, study energy glossaries, and read short essays about energy and conservation. On the other hand, students may be asked to fill out energy-efficient checklists after conducting energy audits at home, to build solar-energy generators or food warmers, and to conduct class experiments with energy.

Almost all the materials relate to what is relevant and common in the students' lives, such as their homes, their social activities, and the way they dress. The exercises and essays deal with ideas the students can readily visualize rather than with abstract concepts.

Most of the currently available materials are oriented toward science and mathematics curricula, primarily because a major source for such materials thus far has been the National Science Teachers Association, and because the topic of energy traditionally has been designated as a science unit.

Because energy-education is a pragmatic topic, however, many of the materials are equally well-suited for social studies, economics, driver's education, vocational education, and home economics classes. Many of the materials contain questions designed to encourage student analysis of and debate over alternative answers to energy problems that occur in various aspects of life.

With reference to currently available curriculum materials, there are some apparent content gaps. For instance, there are few materials concerning the aspects of global (international) energy. Most of the materials focus on the energy shortage as a domestic problem rather than an international one. Little consideration is given to the critical energy shortages and the complexities of energy pricing in underdeveloped nations or to the interdependence of all nations in the production and use of energy. For students to acquire a realistic awareness of the energy situation, curriculum materials need to reflect a global perspective.

Also lacking are materials that get students physically involved in the learning process. There is a dearth of materials that require manipulation and manual dexterity. While suggestions for projects involving such skills can be found, kits containing the necessary materials are rare.

Another deficiency of the curriculum materials is the paucity of visually appealing resources. Better graphics are needed to enhance student interest.

There is a shortage of measures to evaluate the effectiveness of the curriculum materials. Some packets include pre- and posttests to measure student learning, but in general, little attention has been given to evaluation. Feedback is needed on changes in student skills as well as knowledge, on attitude changes, and on general understanding of the present energy situation. Information is also needed on the number and types of students using the materials.

Results of a U.S. Department of Energy survey show that teacher interest in energy-education materials is high, but educators do not know about existing materials and how to get them. Responses indicate that publicity about what is available has been neither widespread enough nor intense enough to capture the attention of the target audiences. Also, educational leaders are unaware of the many energy and education organizations from which assistance may be obtained.[11] Appendix B contains a list of the major energy contacts within each state.

Local programs that work

Most energy-education programs have started at the local level rather than as a result of state or federal initiative. While many program designs and materials are available from government sources, school boards and teachers rely largely on their own locally developed curriculum guides and activities. These materials generally focus on community and state energy issues as well as on national and global ones.

A program that is conceived by and for one particular school district makes energy education a truly local issue. In individualized programs, emphasis is on the availability of various energy resources within the community, the unique energy needs of the local industries, and the conservation techniques appropriate for the local citizens. Such a personalized approach to education greatly enhances community awareness and participation in the school program.

Catalysts for the programs

Programs developed at the local level have consistently been the result of an educator or a school board realizing the extent of the energy crisis and the need to do something about it. With that awareness, students and teachers have been eager to explore and share information on energy issues and conservation.

In some instances, inservice energy-education workshops have motivated teachers to infuse energy education into their classes. This was the case with a junior-high-school science teacher in Ohio. After attending workshops sponsored by Ohio State University, he developed an energy-awareness course which not only gave new emphasis to science, per se, but resulted in overlaps with other aspects of the curriculum since his students began inquiring about energy topics in their other classes.[12]

In New Jersey, a class discussion on the energy crisis inspired the following multi-discipline approach to energy education in an elementary school:

> The art teacher guides the development of energy models; the music teacher incorporates songs about energy in lesson plans (the children write some of the songs); the language teacher helps the children write poetry and articles about energy for the school newspaper; the math teacher instructs the children in the calculation of gas mileage and the reading of graphs; and the social-studies teacher leads discussion on how the social, political, and economic circumstances throughout the Middle East affect the fuel shortage.[13]

A field trip can also lead to the development of energy projects and programs. For example, after visiting a local business that was conserving energy, some elementary students in Idaho were motivated to plan ways in which their school could conserve energy, too. The children created skits, puppet shows, and short stories to be shared with other classes. They also planned an energy-conservation poster contest that ultimately involved the entire school population.[14]

Some energy-education programs have been initiated by the central office staff. For example, the Staff Development Center of Salt Lake City's Granite School District developed

a two-pronged approach to energy education. First, 200 elementary-school teachers participated in a one-year inservice training program. They heard lectures, took field trips, and learned about ways to conserve energy. An "Energy Module Inventory," containing books, films, filmstrips, audio-video cassettes, pretests and posttests, and other materials for children in grades K-6, was prepared at the end of the year. The teachers then adapted the module to fit their students' needs. Within two years, more than 15,000 students in the school district were exposed to energy issues.[15]

Funding for the programs

With no special funding and no formal help, some teacher-instigated programs have become integral parts of the school curriculum.

In some instances, schools have received help from local non-profit organizations. For example, a 4-H club youth agent assisted sixth-grade students in Springfield, Kentucky, in determining the energy efficiency of their school in comparison with that of two other schools. The 4-H agent arranged for a computer terminal from the University of Kentucky to be brought to the classroom so that data could be processed more readily.[16]

Several educational agencies at the state level have provided school districts with mini-grants to implement energy-education projects. For example, the South Carolina State Department of Education sponsors a project (The Energy Conservation Corps) to promote energy conservation among students. A major activity involves students teaching students. High-school students plan lessons and activities to teach younger children about energy. With teachers' supervision, the older students teach the younger ones in elementary classrooms. Informal feedback indicates that all groups benefit from the experience.[17]

In Pennsylvania, Project E3 (Energy, Economics, and Environment) provides funds for schools interested in developing energy projects. With $1,000 from Project E3, which is part of the Environmental Studies Program serving the eastern section of the state, students in one high school organized field trips, attended energy conferences, and invited an electric company representative to speak at the school. To determine their community's knowledge and use of energy, the students designed and distributed a questionnaire. The students kept the community informed about recent energy developments by maintaining a community energy bulletin board and showcase, by creating a recycling display, and by scheduling a solar trailer to visit the local supermarket.[18]

The federal government has also been actively involved in helping schools develop energy-education programs. In 1975, the Federal Energy Administration (now the U.S. Department of Energy) sponsored regional hearings to determine developments in energy education. Education task forces were established in school districts across the country to respond to those needs. For example, in the San Diego area, the energy-education task force produced two classroom-tested energy-education programs that have been used by more than 2,000 primary and intermediate classes. A program for secondary students is also underway.[19]

Grants for energy education are available from a variety of federal agencies, particularly the U.S. Department of Education and the U.S. Department of Energy. Detailed information on the agencies that offer such grants and how to apply for them appears in Appendix C.

Local School Districts: A Plan of Action

Given that the basic groundwork for energy-education programs has already been done, and that a body of information and materials (albeit imperfect) has been generated for educational purposes, what remains to be done by local school districts? Primarily, commitments need to be made—commitments of both time and money—by the school board, administrators, and teachers to infuse energy education into the school curriculum.

An initial step is to establish policies regarding curriculum development. School board policies about any new curriculum share some common elements:

- Encouragement of ongoing curriculum development and evaluation.
- Establishment of curriculum-development committees.
- Active teacher involvement; and
- Input from parents, students, and support services to determine need for and desirability of new courses.

Local district policy might also encourage energy-related topics at all levels and in all appropriate disciplines, and the development of inservice programs on energy education for all teachers.

Because the idea of adding energy education to existing curricula is relatively recent, few school boards have formally addressed the issue. The school district of Birmingham, Alabama, however, has implemented the following policy on energy conservation as part of the curriculum:

> To understand conservation and the wise use of natural resources, the Board believes that it is vital to create an awareness of the necessity for the conservation of energy through the education of each student. Such instruction could help to develop attitudes that guide responsible student behavior in present and future management of energy resources.
>
> Students shall have the opportunity to learn about energy conservation through appropriate instruction at all levels. The programs used for this instruction may be those furnished through in-service training from the Division of Curriculum and Instruction as approved by the State Department and/or the Jefferson County Board of Education.
>
> Teachers are encouraged to employ energy conservation concepts in each course and are encouraged to use learning activities that create a comprehension of energy problems and possibilities. Use of classroom discussion, books, periodicals, nature walks, home audits, and independent projects may result in a better understanding of changing energy situations.[16]

In infusing energy education into the curriculum, a determination should be made of the differences between what is currently being learned and what ultimately should be learned. The gaps between the actual status of the program and the ideal status of the program may then be incorporated into a curriculum. One way of doing this is to write a progress report. One section of the report may identify present energy-education activities, programs, and curriculum materials in the district's schools. Another section may include the results of student and community

surveys measuring attitudes and knowledge of energy-related issues. From these assessments, school boards could determine long-range goals and criteria for success for energy education. Follow-up assessments could be made periodically to evaluate the success and impact of the energy-education program.

After goals are established, the energy-education curriculum is designed. One approach is for the board to select a group of volunteer teachers and curriculum leaders from all levels and disciplines to plan K-12 energy curricula. The group might be encouraged to concentrate on only the most important ideas in order to do a few things well at each level. Often available to school boards is the assistance of energy-education specialists, university researchers, energy corporations, practical technologists, and social scientists. The board may also borrow liberally from the available energy materials and curriculum designs at some or no cost.

To succeed, a new program needs the support of teachers as well as administrators.

School boards can garner such support by urging administrators and faculty to contribute to the promotion of energy education district-wide in the following ways?

- Faculty members and librarians could begin compiling lists of resource materials and teaching aids needed to develop a comprehensive energy-education program.
- Conferences and inservice training programs on energy topics and energy-infused curricula could be offered for teachers and administrators.
- Guidance staff could update information regarding opportunities in energy-related careers.
- Faculty, administrators, students, and community members could be organized to promote energy-education activities in the community at large.

Before any new program can be implemented, of course, school boards must allocate the necessary money to fund the program, acquire equipment and materials to supplement the program, and train teachers to conduct the program.

Appendix A: Energy-Education Materials

The following list is a sample of the energy-education materials developed by school systems, profit and nonprofit organizations, and federal agencies. Two sources appear frequently and are abbreviated as follows:

DOE/TIC — Department of Energy/
Technical Information Center
P.O. Box 62
Oak Ridge, TN 37830
(615) 547-1000

(For an annotated list of all DOE materials, write Education Division, DOE Consumer Affairs, 8G082, Washington, D.C. 20585.)

EEAC — Energy and Education Action Center
Department of Education
Reporters Building, Suite 514
7th and D Streets, S.W.
Washington, DC 20202
(202) 472-7777

CURRICULUM GUIDES AND LESSON PLANS

Energy, Food, and You

This publication includes interdisciplinary curriculum guides for K-6 and 7-12 ($5 per guide). Topics discussed include sources and uses of energy, global food and energy problems, the U.S. food system, energy efficiency and good nutrition, and wise use of energy resources through home gardening. To purchase the guides, contact:

Washington State Office of
Environmental Education
% Shoreline District Offices
N.E. 158th & 20th Avenue
Seattle, WA 98155
(206) 365-0433

Energy & Man's Environment (EME)

Designed to help students achieve "energy literacy," this package includes a series of educational programs on energy and conservation. Lesson plans, a glossary, a bibliography, and a film index are provided. The instructional and reference materials are based on seven principal concepts:

1. The dependency of mankind on energy,
2. The sources of energy,
3. The conversion of energy from one form to another,
4. The environmental and economic impact of energy exploitation,
5. The finite nature of the earth's resources,
6. Future energy sources, and
7. Personal consumption and conservation.

In addition to publishing educational materials, EME holds energy-related conferences, workshops, and seminars for teachers of all disciplines and grade levels. For further information and sample programs, write to:

Energy & Man's Environment
7874 S.W. Nimbus Avenue
Beaverton, OR 97005
(503) 641-9043

Energy: Information, Insight, Issues, Impact, Investigation, and Implications

This 134 page publication deals with the natural, political, economic, social, and environmental aspects of energy. The book contains an attitude survey and energy quiz; worksheets; fact sheets; pictures, charts, and graphs; a glossary of energy terms; and suggestions for class activities and

projects. Pages are designed to be duplicated for student use. The book is being distributed for free by EEAC.

Interdisciplinary Student/Teacher Materials in Energy, the Environment, and the Economy, and Energy Education Workshop Handbook

Both packets were produced by the Project for an Energy-Enriched Curriculum (PEEC) by the National Science Teachers Association. For each grade level, a separate packet was prepared which contains lesson plans, a teacher's guide, and student materials covering a variety of energy topics. The handbook was designed to help teachers, supervisors, and in-service directors lead workshops based on the PEEC materials; however, it can be modified to be used with other resources. The handbook contains general workshop planning aids (e.g., flow charts and application forms) and individual chapters devoted to organizing workshops on the interdisciplinary nature of energy, on infusing energy topics into traditional teaching areas, and on adapting PEEC materials to regional interests and educational resources.

The PEEC packets and the handbook, both free, can be ordered from either DOE/TIC, or from:

National Science Teachers Association
1742 Connecticut Avenue, N.W.
Washington, DC 20009
(202) 265-4150

Schoolhouse Energy Efficiency Demonstration (SEED)

Intended as a handbook for school energy managers, this report concentrates on actions that can be taken to reduce energy consumption. It contains sample lesson plans. For more information, contact:

Tenneco, Inc.
Tenneco Building
P.O. Box 2511
Houston, TX 77001
(713) 757-2131

Science Activities in Energy

A set of "hands-on" experiments devised for grades 4-6 are organized into the following units: chemical energy, conservation, electrical energy, solar energy, wind energy, and solar energy II (for grades 9-12). They can be obtained free from DOE/TIC.

The Wide World of Energy Multimedia Kit

The Walt Disney Educational Company and the Exxon Corporation jointly prepared this self-contained learning lab for upper-elementary and junior-high classes. The kit contains a color and sound filmstrip, 18 full-color study prints, an energy game, 30 copies of the comic book *Mickey Mouse and Goofy Explore Energy*, ten suggestions for classroom activities, and a teacher's guide. For $119, the kit can be purchased from:

Walt Disney Educational Media Company
500 South Buena Vista Street
Burbank, CA 91521
(213) 841-2000

The comic books, *Mickey Mouse and Goofy Explore Energy* and *Mickey Mouse and Goofy Explore Energy Conservation*, are available without charge from:

Public Affairs Department
Exxon, U.S.A.
P.O. Box 2180
Houston, TX 77001
(713) 656-5485

Total School Energy Management Program

This March, 1980, publication by the U.S. Department of Energy contains suggestions on ways to infuse energy-education into existing curricula of many subjects as well as methods of conserving energy in school buildings and school buses. The manual breaks the curriculum assessment and development process into five steps:

1. the curriculum audit,
2. curriculum evaluation,
3. curriculum development,
4. selecting materials, and
5. curriculum inservice

Charts, activities, and lists of resources are provided for each step. A copy of the publication (stock #061-000-00396-7) may be purchased for $5.50 from:

Superintendents of Documents
U.S. Government Printing Office

Washington, DC 20402
(202) 783-3238

Your Energy World

Designed for intermediate students (9 to 12 years old), this program consists of the following four units, each of which could take from three to five periods of classroom time: (1) Your Energy World: An Overview, (2) Transportation: The Energy Eater, (3) Energy Use in Homes and Stores, and (4) Schools Can Conserve, Too. Each unit is self-contained and can be used independently of the others. The set of four units may be obtained without charge from DOE/TIC.

SUPPLEMENTAL MATERIALS

Conservation Consultants

This company provides a variety of energy- and conservation-related curriculum and audio-visual materials, some of which are free. Materials can be obtained from:

Conservation Consultants
417 Thorn Street
Sewickley, PA 15143
(412) 741-3536

DuPage Mayors and Managers Energy Education Project

This resource is a workbook which originally was developed for use in Illinois. It is divided into primary, intermediate, junior-high, and high-school levels. It includes suggestions for interdisciplinary energy-conservation activities and field trips and an energy information resource list. The workbook is distributed free of charge by EEAC.

Ideas and Activities for Teaching Energy Conservation

This free package of lessons and activities for 7th to 12th grade science, social studies, and language arts classes can be obtained from:

University of Tennessee
Environment Center
South Stadium Hall
Knoxville, TN 37916
(615) 974-4251

Solar Energy Education Packet for Elementary and Secondary Students

This packet available for $4.25 plus postage, is a 64-page collection of multidisciplinary solar activities; reading assignments; background materials; a bibliography; and more than 25 outlines for sun, wind, water, and biomass (i.e., the amount of living matter in a habitat) projects. It can be ordered from:

Center for Renewable Resources
1001 Connecticut Avenue, N.W.
Suite 510
Washington, DC 20036
(202) 466-6880

RESOURCE LISTS

Energy: An Annotated Bibliography of Selected Energy Education Materials

This 61-page annotated bibliography includes the names and addresses of publishers and distributors of energy-related books, pamphlets, reports, booklets, periodicals, audio-visual materials, research reports, teaching guides, and other bibliographies. The bibliography is distributed free of charge by EEAC.

Energy Conservation/Education Fact Sheet No. 1 1980

This fact sheet deals with films assessed as useful in energy education. Films are reviewed, film catalogs are annotated, and purchasing and rental fees are listed. For a free copy of the fact sheet, contact:

ERIC/SMEAC
1200 Chambers Road
Columbus, OH 43212
(614) 422-6717

Energy Education Materials Inventory—Volume II

Prepared for the U.S. Department of Energy's Education Division, this is a 443-page annotated bibliography of available energy-related materials for grades K-12 as of December, 1978. The major

section of the inventory, which is organized according to medium (e.g., film, print), includes titles, descriptions, purchase and rental fees, names and addresses of distributors, and publication dates of educational materials. Two smaller sections, organized according to grade level and subject, are cross references for the media section. The inventory, stock #061-000-00134-0, may be ordered for $8.00 from:

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402
(202) 783-3238

Energy Executive Directory

This directory contains over 25,000 entries of federal, state, and local energy officials, including 10,000 personnel listings, over 200 trade associations and organizations, and over 250 energy publications and newsletters. The directory is updated three times per year. A single copy costs $36, and one annual order (including the updates) costs $60. The directory can be purchased from:

Energy Executive Directory
1800 K Street, N.W., Suite 1006
Washington, DC 20006
(202) 452-1188

Selected Department of Energy Publications/ Energy Films Catalog

The U.S. Department of Energy makes available free of charge publications on curriculum materials for all grades. Also, they provide teacher resources, including energy-education activities and contests. Some of the publications are booklets on specific topics while others are complete study units. Also available on free loan are energy-related films. The two booklets listing DOE's publications and films can be ordered from DOE/TIC.

Appendix B: A State-by-State Guide to Energy-Education Resources

Often the best way to find out what districts in your state are doing about energy education is to contact a state education official.

The following guide to education and energy contacts and resources in each state is reprinted with permission from *The Energy Consumer* (April/May 1980), U.S. Department of Energy, Office of Consumer Affairs, Room 8G082, Washington, D.C. 20585, (202) 252-5880. Inclusion of materials does not imply endorsement by the Department of Energy. All information is current as of May 1980.

The State Education Agency contact (column 1) is usually the primary source of information on state-specific energy curricula and materials and on teacher training.

The State Energy Office or Energy Extension Service contact (column 2) can answer more detailed energy questions. Many states have tollfree "hotlines" which can provide general energy information.

In the third column are brief summaries of each state's energy education resources and activities, including publications, curricula, and special services such as reference and film libraries, speakers bureaus, and teacher training. The address for further information on any item in this column is indicated by the abbreviation SEA (the state education agency contact in column 1), SEO (the state energy office contact from col. 2), or EES (the energy extension service contact from col. 2).

STATE EDUCATION AGENCY CONTACT	STATE ENERGY OFFICE CONTACT	ENERGY CURRICULA, PUBLICATIONS OTHER RESOURCES
Alabama		
Energy Educ. Spec. Dept. of Education 111 Coliseum Blvd. Montgomery AL 36193 205/832-5850	Staff Director Alabama Energy Management Board 3734 Atlanta Highway Montgomery AL 36130 205/832-5010	SEA has interdisciplinary energy curriculum (social studies, science, and math units; teachers guide for language arts); is developing early education materials; has introductory filmstrip on the energy situation.
Alaska		
Education Specialist Dept. of Education Pouch F Juneau AK 99811 907/465-2841	Energy Extension Serv. Alaska Div. of Energy MacKay Bldg., Rm. 110 338 Denali St. Anchorage AK 99501 907/276-0512	Curriculum guide available from Dept. of Natural Resources (Rm. 000, MacKay Bldg.) SEO provides materials to science coordinators in school districts; produces brochures and fact sheets; runs teacher workshops with Western Sun. SEA runs statewide energy workshops for teachers.
Arizona		
Director of Energy/ Environmental Education Services Dept. of Education 1535 West Jefferson Phoenix AZ 85007 602/255-4810 800/352-4558 (hotline)	Education Planner Arizona Office of Energy Programs 1700 W. Washington Room 504 Phoenix AZ 85007 602/255-3303 800/352-5499 (hotline) 602/255-3303 (Phoenix)	SEA has *My Energy is Your Energy* booklet; maintains reference library; lends films; provides inservice teacher training; provides technical assistance in program development. SEO has free solar and conservation publications (write for list.) Ariz. Solar Energy Comm. (502 West Wing, Capitol Twr., 1700 W. Washington, Phoenix 85007) has consumer guides.

STATE EDUCATION AGENCY CONTACT	STATE ENERGY OFFICE CONTACT	ENERGY CURRICULA, PUBLICATIONS, OTHER RESOURCES
Arkansas		
Economic, Energy, Environmental & Conservation Education Coordinator Dept. of Education State Education Bldg. Room 104-W Little Rock AR 72201 501/371-2061	Education Coordinator Arkansas Energy Office 3000 Kavanaugh St. Little Rock AR 72205 501/371-1370 1-800/482-1122	SEA sponsors state-wide workshops, has held 100 seminars in public schools. SEO maintains film/reference library; energy specialists on hotline. *Arkansas & Energy: A Look At The Alternatives* available from Arkansas Ecology Community Center, 1852 Cross St., Little Rock AR 72206 for $4.50.
California		
Environmental Education Manager Dept. of Education 721 Capitol Mall, 3rd Floor Sacramento CA 95814 916/323-0561	Asst. Director for Communications Calif. Energy Comm. 1111 Howe Ave. Sacramento CA 95825 916/920-6430	SEA publishes curriculum guide and energy publications; field testing K-12 materials package; offers funds to agencies and schools to develop programs; maintains energy resource library, lends films including "1000 Suns;" has 58 county resource people.
Colorado		
Project ACCESS Colorado Department of Education State Office Bldg. Colfax and Sherman Denver CO 80208 303/839-2232	Program Director Colorado Office of Energy Conservation 1600 Downing St., 2nd Floor Denver CO 80218 303/839-2507	SEA/Project ACCESS provides energy curriculum materials free to teachers; networking assistance in finding materials, human resources. SEO offers energy publications (many free) and maintains reference library. Energy films at Denver Public Library.
Connecticut		
Science Consultant State Dept. of Education PO Box 2219 Hartford CT 06115 203/566-4825	Program Manager Public Information Off. of Policy & Mgmt. Conn. Energy Division 80 Washington St. Hartford CT 06115 203/566-5803/7038 800/842-1648 (hotline)	SEA provides free energy handouts to instate teachers; write SEO for list of energy publications and conservation films. Contact SEA about teacher inservice workshops; SEO for information on general energy workshops.
Delaware		
State Supervisor, Science/Environmental Education Delaware Dept. of Public Instruction PO Box 1402 Dover DE 19901 302/736-4885	Energy Extension Service Assistant 56 The Green Dover DE 19901 302/736-5644 800/282-8616 (hotline)	Elementary, secondary curriculum materials developed by SEA and SEO available in microfiche from Bureau of Archives and Records, PO Box 1401, Dover DE 19901. SEO does slide show presentations and clinics.
D.C.		
Supervisor for Science K-12 Langdon Elementary Sch. Competency Based Curriculum Center 20th & Evarts Sts., NE Washington DC 20018 202/576-6580	Public Info. Spec. D.C. Energy Unit Office of Planning & Development 1420 New York Ave. NW, 2nd Floor Washington DC 20005 202/727-1832 202/724-2100 (hotline)	SEA is developing an energy conservation program in the schools in conjunction with DC Citizens for Better Public Education (202/484-7030); offers free loan films. SEO provides speakers; maintains reference library.

STATE EDUCATION AGENCY CONTACT	STATE ENERGY OFFICE CONTACT	ENERGY CURRICULA, PUBLICATIONS OTHER RESOURCES
Florida		
Director Off. of Environmental Education Florida Dept. of Education Park 20 West Tallahassee FL 32304 904/488-6547	Energy Educ. Coord. Governor's Energy Off. Information Center The Capitol Tallahassee FL 32301 904/488-6143	Florida Master Plan and Action Guide for Energy Education available from SEA. Contact SEO for list of energy publications; publications also available through County Information Centers at Ag. Extension Offices. "Driving Habits" available from license bureaus. SEO can provide speakers.
Georgia		
Science Coordinator Georgia Dept. of Education State Office Bldg. Atlanta GA 30334 404/656-2576	EES Coordinator Office of Energy 270 Washington St. SW Atlanta GA 30334 404/656-5176	SEA curriculum centers have materials on loan. SEO distributes publications; conducts weatherization workshops; provides outreach staff.
Hawaii		
Program Specialist, Environmental Ed. 1270 Queen Emma St., Room 1102 Honolulu HI 96813 808/548-5959 808/833-6959 (hotline-Energy Resrce Ctr.)	Director, Hawaii Energy Project Univ. of Hawaii 1776 University Ave. Honolulu HI 96822 808/948-6831	SEA field testing energy modules for K-6 (7-12 modules to be tested by Fall 1981.) Energy Resource Center is clearinghouse for materials and conducts teacher workshops. Call hotline for descriptive brochure. Films, filmstrips, videotapes at SEA film library, state library, and universities.
Idaho		
Consultant for Proficiency Testing Idaho Dept. of Education Len B. Jordan Bldg. 650 W. State St. Boise ID 83720 208/334-2281	Public Info Officer Idaho Office of Energy Statehouse Boise ID 83720 208/334-3406	Information on *Idaho Energy Conservation Resource Guide* and inservice workshops available from SEA. From SEO: Infusion units on energy for K-6, 7-10, 10-12; resource guide for libraries; other energy publications and reference materials; some films and videotape shows available.
Illinois		
Educational Consultant Program Planning & Development Ill. State Board of Education 100 N. First St. Springfield IL 62777 217/782-2826	Manager, EES Division Institute of Natural Resources 325 Adams St. Springfield IL 62706 217/785-2800	Energy factsheets and other publications available through Energy Extension Services at county Coop. Extension offices. Bottle Bill handout available to teachers from SEA. SEA conducts citizen workshops; trains energy education consultants to work with local teachers. SEO provides transportation workshops
Indiana		
Energy Education Consultant Dept. of Public Instruction Division of Curriculum State House, Rm. 229 Indianapolis IN 46204 317/927-0111	Residential & Educational Coordinator Ind. Dept. of Commerce Energy Group 440 N. Meridian Indianapolis IN 46204 317/232-8940	SEA has "Energy Education Cadre" of 10 classroom teachers to help other educators; publishes energy newsletter; is implementing K-9 curriculum (10-12 guides available spring 1981); lends classroom energy display. Ind. Energy & Education Comm., 1117 W. 10th, Marion IN 46952 publishes newsletter; clearinghouse for state energy education information.

STATE EDUCATION AGENCY CONTACT	STATE ENERGY OFFICE CONTACT	ENERGY CURRICULA, PUBLICATIONS OTHER RESOURCES
Iowa		
Energy Consultants Instruction & Curriculum Division Iowa Dept. of Public Instruction Grimes State Off. Bldg. Des Moines IA 50319 515/281-3265	Research Director Iowa Energy Policy Council Capitol Complex Lucas Bldg. Des Moines IA 50319 515/281-4307 800/532-1114 (solar hotline)	From SEA: results of energy education survey; K-6 energy program (7-12 program ready for fall 1980); film catalog. SEA sponsors inservice energy workshops; has trained ⅓ of Iowa elementary teachers with "Energy Conservation Activity Packet." SEO provides energy publications; maintains speakers bureau and public reference library.
Kansas		
Coordinator, Educational Assist. Sec. Kansas Dept. of Educ. 120 East 10th Topeka KS 66612 913/296-3851	Information Specialist Kansas Energy Office 214 W. 6th St. Topeka KS 66603 913/296-2910 800/432-3537 (hotline)	SEO provides energy materials (alternative energy, conservation, insulation, list of energy information sources); maintains public reference library, film library (including "Featherfoot," a film on energy-efficient driving), and speakers bureau.
Kentucky		
Program Manager Environmental Educ. Dept. of Education 1829 Capital Plaza Tower Frankfort KY 40601 502/564-2672	Director, Div. of Conservation Ky. Dept. of Energy PO Box 11888 Iron Works Pike Lexington KY 40578 606/252-5535	From SEA: *Energy Conservation Activities for the Classroom, K-12* and *Teacher's Guide to Energy Resources in KY*. SEA has curriculum lab; runs teacher training workshops in energy; supports energy conferences. SEO has energy publications; maintains speakers bureau, lending library, small film library; holds workshops on request.
Louisiana		
Science Supervisor Louisiana Dept. of Education PO Box 44064 Baton Rouge LA 70804 504/342-3419	Natural Resources Project Specialist Louisiana Dept. of Natural Resources PO Box 44156 Capitol Station Baton Rouge LA 70804 504/342-4498	*K-8 Energy Conservation Activities Guide* has been published by SEA. SEO provides energy posters and student materials; provides speakers; conducts energy workshops for teachers and low-income people; maintains small but growing film library.
Maine		
Coordinator, Energy Conservation Maine Dept. of Educ. Educ. & Cultural Svcs. Statehouse Station 23 August ME 04330 207/289-2061	Educ. Program Director Office of Energy Resources Statehouse Station 53 Augusta ME 04333 207/289-3811 800/452-4648 (hotline)	SEA distributed packets to all schools to develop interest in energy education; makes energy films available through local media centers. SEO provides publications; maintains public resource library; has resource people. SEA/SEO Task Force drafting questionnaire to assess statewide energy education needs.
Maryland		
Energy Education Specialist Div. of Instruction Dept. of Education 200 W. Baltimore St. Baltimore MD 21201 301/659-2000	Public Information Officer Md. Energy Policy Off. 301 W. Preston St. Suite 1302 Baltimore MD 21201 301/383-6810 800/492-5903 (hotline)	From SEA: *Energy Education Resources Guide*; quarterly energy education newsletter; Maryland energy slide show. SEA runs inservice and summer workshops; circulates Montana League of Women Voters' puppet show. From SEO: speakers and publications, reference and film library.

STATE EDUCATION AGENCY CONTACT	STATE ENERGY OFFICE CONTACT	ENERGY CURRICULA, PUBLICATIONS OTHER RESOURCES
Massachusetts		
Assoc. Commissioner of Education Mass. Dept. of Educ. 31 St. James Ave. Room 539 Boston MA 02116 617/727-5759	Mass. Exec. Office of Energy Resources 94 State St. Springfield MA 01103 413/739-9615 800/922-8265 (hotline)	SEA booklet *Energy Ideas for School Curricula*. SEA provides energy handouts; maintains reference libraries in regional education offices; sponsors energy workshops and conferences (parents welcome). SEO maintains reference library; helps locate resource people; assists in putting workshops together.
Michigan		
Interim Supervisor Instructional Specialist Programs MI Dept. of Education PO Box 30008 Lansing MI 48909 517/373-3302	Energy Educ. Coord. Energy Conservation/ Consumer Assistance Mich. Dept. of Commerce PO Box 30228 Lansing MI 48909 517/373-0480 800/292-4704 (hotline)	SEO has teachers guide, K-12 energy curriculum materials, Michigan-developed activity packets, a variety of general energy publications, film list; maintains reference library; refers teachers to resource people.
Minnesota		
Specialist, Science Ed. Minn. Department of Education 642 Capitol Square Building St. Paul MN 55101 612/296-4071	Information Ctr. Spec. Minnesota Energy Agency 980 Amer. Center Bldg. 150 East Kellogg Blvd. St. Paul MN 55101 612/296-9706	SEO provides handouts; maintains reference library and operates regional energy information centers (addresses available from SEO); provides non-classroom speakers; has developed adult education modules.
Mississippi		
Science & Environmental Consultant Instructional Services Miss. Department of Education PO Box 771 Jackson MS 39205 601/354-6876	Energy Extension Ctr. PO Box 5406 Mississippi State, Mississippi 39762 601/325-3137 800/962-2310 (SEO hotline)	From SEA: bibliography of energy materials for teachers (contact Mike Carothers). Energy Extension Center (Col. 2) has series of 10 curriculum guides for middle, secondary programs (write for order brochure); *Each One Teach One* materials, featuring the "Energy Grunch," for elementary teachers; is developing resource and inservice training guides.
Missouri		
Director of Health, Phys. Educ., and Environmental Educ. Dept. of Elementary & Secondary Education Box 480 Jefferson City MO 65102 314/751-2664	Clearinghouse Coordinator Mo. Department of Natural Resources PO Box 1309 Jefferson City MO 65102 314/751-4000 800/392-0717 (hotline)	SEA provides curriculum and materials information; puts out newsletter which covers energy topics. SEO publications include 8 "bright ideas" on conservation and factsheets. SEO provides resource people, workshops on request maintains reference library; lends films.
Montana		
Social Studies & Environmental Education Consultant Office of Public Instruction State Capitol Helena MT 59601 406/449-2543	Home Energy Specialist Energy Division Montana Dept. of Natural Resources 32 South Ewing St. Helena MT 59601 406/449-3940	SEO sponsors week-long summer energy camp for 7th graders; provides resource people to schools on request. SEA conducts teacher inservice workshops; has consultants who work with school districts to implement education programs; publishes newsletter.

STATE EDUCATION AGENCY CONTACT	STATE ENERGY OFFICE CONTACT	ENERGY CURRICULA, PUBLICATIONS OTHER RESOURCES
Nebraska		
Science Consultant Nebraska Department of Education PO Box 94987 301 S. Centennial Mall Lincoln NE 68509 402/471-2446	Education Coordinator Nebraska Energy Office PO Box 95085 Lincoln NE 68509 402/471-2867	From SEO: *Energy Resource Guide* and other energy pubs; listing of 19 Education Service Units which distribute materials to school districts; basic training units (7-12) free to state teachers; reference library; has produced TV documentaries. County Extension agents and state universities also provide energy publications.
Nevada		
Science Education Consultant Nevada Dept. of Education 400 W. King Street Carson City NV 89710 702/885-5700	Deputy Director Nevada Dept. of Energy 400 W. King Street Suite 106 Carson City NV 89710 702/885-5157	SEO provides energy publications (also available in libraries and shopping malls); provides speakers to accompany energy films; is developing slide show.
New Hampshire		
Task Force Chairman Consultant for Trades & Industrial Educ. Dept. of Education 105 Loudon Rd. Concord NH 03301 603/271-3587	Director, Education Outreach Division Governor's Council on Energy 2½ Beacon St. Concord NH 03301 603/271-2711 800/852-3466 (hotline)	From SEO: selected resource materials for educators; driver training materials. Energy and Man's Environment has been contracted for curriculum materials.
New Jersey		
Office of Planning and Development N.J. Dept. of Educ. 225 West State St. Trenton NJ 08625 609/292-4442	Energy Analyst New Jersey Dept. of Energy 101 Commerce St. Newark NJ 07102 201/648-3901 800/492-4242 (hotline)	SEA developing coordinated dissemination capacity for energy-related curricula; vocational education division preparing course for solar installers. Reference materials at Education Improvement Centers in Morris Plains, Princeton, W. Orange, and Sewell. From SEO: energy publications and newsletter; workshop information; speakers; residential slide show.
New Mexico		
Science and Conservation Specialist Dept. of Education State Education Bldg. Santa Fe NM 87503 505/827-5391	Administrator New Mexico Energy and Minerals Dept. Energy Conservation & Management Division PO Box 2770 Santa Fe NM 87501 505/827-5621 800/432-6782 (hotline)	EES provides energy materials; maintains list of resource people. Colleges and universities are developing energy education materials and conducting teacher workshops. Some utilities provide classroom demonstrations and workshops for teachers.
New York		
Solar Energy Education Project Room 302EB N.Y. State Department of Education Albany NY 12234 518/473-1065	Energy Extension Specialist N.Y. State Energy Off. 2 Rockefeller Plaza Albany NY 12223 518/474-4083 800/342-3722 (hotline)	From SEA: *Watts Available in Energy Education* (biblio.); 7-12 solar curriculum; *Living Within Our Means—Energy and Scarcity* (K-12 activities); info on microfiche energy materials and Project Gift film library. From SEO: materials on alternative energy; poster contest; speakers bureau; resource people; free film loans.

STATE EDUCATION AGENCY CONTACT	STATE ENERGY OFFICE CONTACT	ENERGY CURRICULA, PUBLICATIONS OTHER RESOURCES
North Carolina		
Science Education Consultant Dept. of Public Instruction Room 284 Educ. Bldg. Raleigh NC 27611 919/733-3694	Chief of Energy Information Section N.C. Energy Division Department of Commerce PO Box 25249 Raleigh NC 27611 919/733-2230 800/662-7131 (hotline)	SEA distributes free classroom instructional materials; operates clearinghouse for energy curriculum info; operates K-8 "Energy Wise" program and inservice training workshops; lends slide presentation. SEO has conservation booklets, newsletter; lends films from its reference library.
North Dakota		
Energy Education Dir. Center for Teaching and Learning Univ. of North Dakota Grand Forks ND 58202 701/777-3155	Energy Conservation Specialist Federal Aid Coordinator Office Energy Management & Conservation Programs 1533 North 12th St. Bismarck ND 58501 701-224-2250	Univ. of ND Center for Teaching and Learning has graduate programs for teachers; publishes newsletter; maintains AV and print resource center; makes referrals to resource people. SEO provides K-12 curriculum materials; list of resource people; conservation and alternative resource publications; inservice workshop assistance; films.
Ohio		
Consultant, Environmental Education Ohio Dept. of Educ. 65 S. Front St. Rm. 801 Columbus OH 43215 614/466-5015	Ohio Dept. of Energy 30 East Broad St., 34th Floor Columbus OH 43215 614/466-7915 800/282-9234 (hotline)	SEA provides single copies of energy education materials free; energy curriculum materials for teachers; resource materials. Inservice workshops planned. SEO offers energy factsheets, film loans.
Oklahoma		
Science Specialist Oklahoma Department of Education 2500 N. Lincoln Oklahoma City OK 73105 405/521-3361	Energy Mgmt. Officer Okla. Dept. of Energy 4400 N. Lincoln Blvd. Suite 251 Oklahoma City OK 73105 405/521-3941	From SEA: K-12 resource materials guide (including films and curriculum guide. SEO provides 1-12 curriculum guide, handouts, van presentations. Slide shows available from Oklahoma State Univ. Coop. Extension.
Oregon		
Specialist, Energy/ Environmental Educ. Oregon Department of Education 700 Pringle Pkwy. SE Salem OR 97310 503/378-3890	Energy Program Leader Oregon Energy Extension Service 114 Dearborn Hall Oregon State University Corvallis OR 97331 503/754-3004	SEA resource guide (includes films) being updated. Energy curriculum suggestions included in SEA handbook being distributed this spring (1980). SEA planning regional energy libraries for school and public use at community colleges. EES provides speakers, makes referrals.
Pennsylvania		
Senior Science Advisor Bureau of Curriculum Services Pennsylvania Dept. of Education 333 Market St. 8th Fl. Harrisburg PA 17126 717/787-7320	Acting Deputy Director of Management and Administration Governor's Energy Council 1625 North Front St. Harrisburg PA 17102 717/783-8610	SEA's K-12 energy curriculum (which has been adopted by 6 other states) free if requested on school letterhead; others inquire about cost. SEA updating *Electrical Generation: Policies and Prospects.* SEA will identify local speakers; SEO provides inservice training.

STATE EDUCATION AGENCY CONTACT	STATE ENERGY OFFICE CONTACT	ENERGY CURRICULA, PUBLICATIONS OTHER RESOURCES
Rhode Island		
Program Consultant Rhode Island Dept. of Education 235 Promenade St. Providence RI 02908 401/277-2821	Technical Information Specialist Governor's Energy Off. 80 Dean St. Providence RI 02903 401/277-3370 401/277-3773 (RI residents may call collect)	SEA offers annotated bibliography of energy materials; information on teacher workshops. SEO has resource guide (with film listings) for teachers; conducts teacher workshops; provides resource people.
South Carolina		
Environmental & Energy Education Consultant South Carolina Dept. of Education 803 Rutledge Bldg. Columbia SC 29201 803/758-2652	Public Info. Spec. Governor's Office Division of Energy Resources 1122 Lady St., Rm. 1120 Columbia SC 29201 803/758-2050 1-800/922-5310 (hotline)	SEA has free energy publications for state teachers; holds teacher workshops; provides free films and instructional TV programs to teachers. SEO provides free energy education materials; resource people.
South Dakota		
Science Director Dept. of Elementary & Secondary Education Kneip Bldg. Pierre SD 57501 605/773-3655	State Conservation Program Director Office of Energy Policy Capitol Lake Plaza Pierre SD 57501 605/773-3603 800/592-1865 (hotline)	SEA has lists of energy materials and films, curriculum programs; holds teacher workshops on request. SEO has conservation handouts; provides resource people.
Tennessee		
Chief of Curriculum Services Tenn. State Dept. of Education 117 Cordell Hull Bldg. Nashville TN 37219 615/741-2265	Chief of Energy Conservation Programs Tenn. Energy Authority 226 Capitol Blvd. Bldg., Rm. 710 Nashville TN 37219 615/741-6671 800/342-1340 (information center)	SEA distributes *Ideas and Activities for Teaching Energy Conservation* (7-12) to public schools; provides specialists to work with public and private schools; lends films. SEO provides handout materials; is developing reference library; lends films.
Texas		
Science Consultant Texas Education Agency Div. of Curriculum Development 201 East 11th St. Austin TX 78701 512/475-2608	Director of Texas Energy Extension Svce. Texas Energy & Natural Resource Advisory Council 411 West 13th St., Suite 804 Austin TX 78701 512/475-5407	SEA's energy education packets (with transparencies, slides, tapes) distributed at teacher training sessions at educational service centers throughout state (contact SEA for locations). Centers have film libraries. *Energy Resources of Texas* curriculum materials available from Bur. of Economic Geology, Univ. of Texas, Univ. Station, Box X, Austin 78712.
Utah		
Project Director Energy Conservation Education Utah State Office of Education 250 East 5th South Salt Lake City UT 84111 801/533-5891	Public Information and Education Specialist Utah Energy Office Empire Building, Suite 101 231 East 400 South Salt Lake City UT 84111 801/533-5424	SEA has K-12 energy curriculum; provides energy experts and speakers for classrooms. SEO holds community seminars and workshops; maintains reference library.

STATE EDUCATION AGENCY CONTACT	STATE ENERGY OFFICE CONTACT	ENERGY CURRICULA, PUBLICATIONS OTHER RESOURCES
Vermont		
Program Coordinator Science, Energy, and Environmental Educ. Vermont Dept. of Educ. 120 State St. Montpelier VT 05602 802/828-3111	Information and Education Specialist State Energy Office State Office Bldg. Montpelier VT 05602 802/828-2393 800/642-3281 (hotline)	SEA provides curriculum materials; conducts workshops on request and statewide teacher workshops; provides resource people. SEO provides free energy handouts; lends films and slide shows; maintains reference library.
Virginia		
Associate Director of Science Services Va. Dept. of Education PO Box 6Q Richmond VA 23216 804/786-2676	Information Center Supervisor Virginia Energy Office 310 Turner Rd. Richmond VA 23225 804/745-3245 1-800/552-3831 (hotline)	SEA developing curriculum materials that use energy problem as a teaching device; distributes handouts. SEA specialists help plan school workshops. SEO provides teacher and student materials, energy brochures, home energy packets; maintains reference library; conducts teacher workshops; lends energy films.
Washington		
Supervisor of Science & Environmental Education Programs Superintendent of Public Instruction Old Capitol Bldg. Olympia WA 98504 206/753-2574	Wash. State Energy Off. 400 East Union Ave., 1st Flr. ER-11 Olympia WA 98504 206/754-1350	SEA has a variety of K-12 materials (most free to instate teachers); holds inservice workshops; assists school districts in finding speakers; lends films to teachers. SEO provides handouts; maintains reference library; helps locate speakers.
West Virginia		
Curriculum Development Specialist—Science West Virginia Dept. of Education Building 6 B330 Charleston WV 25305 304/348-7805	Information Rep. West Virginia Fuel and Energy Office 1262½ Greenbrier St. Charleston WV 25311 304/348-8860 800/642-9012 (hotline)	SEA runs statewide fall workshop for science, social studies teachers; local workshops on request. Distributes *Do We Understand Energy* (guidelines for developing course objectives, activities), other materials, films. SEO provides brochures on conservation, other topics, in quantity; maintains reference library; lends films (1st priority to teachers).
Wisconsin		
Supervisor, Environ., Energy & Marine Education Wisconsin Dept. of Public Instruction 126 Langdon St. Madison WI 53702 608/266-3319	EES Information Specialist Information Center, Rm. 727 1 South Park St. Madison WI 53706 608/263-7950	SEA field testing energy units developed in cooperation with other states in the region; developing K-12 energy education plan. Bureau of Audio-Visual Instruction, 1327 University Ave., Madison WI 53706, rents films (call 608/262-1644 for free catalog). EES has fact sheets; reference library.
Wyoming		
Science/Mathematics/ Environmental Education Coordinator 241 Hathaway Bldg. State Dept. of Educ. Cheyenne WY 82002 307/777-7411	Energy Conservation Coordinator Wyoming Energy Conservation Office Capitol Hill Bldg. Cheyenne WY 82002 307/777-7131	SEA has curriculum materials. Science/Math Teacher Ctr. (Box 3992, Univ. Station, Laramie 82071) evaluates materials; makes referrals. SEO: newsletter; library; speakers. WY Energy Exten. (1-800/442-6783) has information on workshops, films; distributes ECON Kits (for developing curricula, activities).

Appendix C: A Selected Guide to Federal Energy and Education Assistance

The Energy and Education Action Center (EEAC), established by the U.S. Department of Education in collaboration with the Federal Interagency Committee on Education, promotes all phases of energy-education activities on an interagency basis by drawing upon all relevant federal, state, and local resources to assist educational clientele in implementing energy plans.

This guide to federal assistance is an abridged version of *A Selected Guide to Federal Energy and Education Assistance*, prepared by the Energy and Education Action Center, U.S. Department of Education, Reporters Building, Room 514, 7th and D Streets, S.W., Washington, D.C. 20202 (202) 472-7777.

Key to Types of Assistance Code:

A—CURRICULUM MATERIALS/DEVELOPMENT

Includes any involvement with developing or disseminating curriculum materials aimed at increasing the base of knowledge in energy. This category is limited to material used in schools (at all levels).

B—DIRECT STUDENT ASSISTANCE

Includes grants, loans, stipends for tuition and living expenses for students to pursue research or studies in the energy disciplines (energy management and engineering; conservation, fossil, nuclear, solar, geothermal and advanced energy systems; environmental sciences and safety; architecture and energy efficient design).

C—EMPLOYEE/TEACHER TRAINING

Includes any in-service education or training workshops sponsored or coordinated by the Federal government to upgrade the quality of teachers (all levels) and employees (all levels). This includes teaching general awareness education, training building engineers high technical methods of conservation and conducting advanced energy research seminars for professors.

D—FACILITIES IMPROVEMENT

Includes those projects dealing directly with technical assistance for retrofitting, standards setting, auditing, in-kind services (personnel or equipment), weatherization of schools and government buildings, conducting retrofits and developing manuals for retrofitting.

E—OUTREACH TO PUBLIC/BUSINESS SECTOR

Includes a multitude of technology transfer activities which reach the public sector to increase their awareness of the energy situation. The public sector includes homemakers, homeowners, carpoolers, small and large business owners, consumers, etc. The activities range from solar hotlines and similar information clearinghouses, citizen's workshops, published newsletters and manuals, and community action projects. This is a function of many agencies' public affairs or public relations offices.

F—RESEARCH, DEVELOPMENT, DEMONSTRATION, DATA COLLECTION AND DISSEMINATION

Includes any R & D efforts to improve the state of the art of energy technology. These efforts can be administered in-house, as well as grants and contracts let out by Federal agencies to private labs, universities, foundations, etc.

G—ASSISTANCE TO LOCAL, REGIONAL AND STATE GOVERNMENTS FOR INNOVATIVE PROJECTS

Includes assistance to local and state education agencies. Federal funds in this case are administered through the state and local education agencies or regional agency offices. In order to establish eligibility, either contact the program offices in Washington, D.C., consult the appropriate regulations, or contact the person in the state education agency or Regional office who is responsible for Federal programs.

Agency: ACTION

Title of Program	Purpose Objective–Descriptive Information	Types of Assistance	$$ FY 80	Information and Application Contacts
VISTA, University Year for Action, Retired Senior Volunteer Program, Youth Challenge Program, Energy Conservation	To provide volunteers who assist in winterization and insulation, in education efforts to teach energy saving methods, job training and placement with solar construction, greenhouse cooperatives and in legal areas concerning utility rates, pollution standards, etc.	C,D,E,G, In-kind personnel services	Est. 1 mill. on energy outreach and related programs.	ACTION State Offices In D.C.: Margery Tabankin, Director, VISTA & ACTION, Education Programs, 806 Conn. Ave. NW, Wash., D.C. 20525
National Center for Appropriate Technology	To support a small grants program for community demonstration projects in energy conservation. (Solar Wind, Methane.) To support an extension staff of 10 outreach workers. To support a staff of 25 Engineers and architects who develop and test Technologies, write technical reports and provide assistance to groups involved in appropriate technology endeavors. To support research and information dissemination activities.	A,C,D,E,F,G	3 million grant from CSA	Edwin C. Kepler, Executive Director, NCAT, Box 3838, Butte, Montana 59701, 406-723-6533

Agency: DEPARTMENT OF DEFENSE

DOD Dependents Schools	Teacher in-service program designed to develop, implement and evaluate an energy education curriculum for infusion into general K-12 curricula. Goal is to develop an energy ethic for community; conservation as well as other principles are stressed.	A,C No contract	not applicable	Education Division, Office of the Director, DOD Dependents Schools, Hoffman Building, Rm 172, 2461 Eisenhower Avenue, Alexandria, Virginia 22331

Agency: DEPARTMENT OF ENERGY

Title of Program	Purpose Objective–Descriptive Information	Types of Assistance	$$ FY 80	Information and Application Contacts
Energy Extension Service	The National Energy Extension Service is a federal-state partnership to give personalized information and technical assistance on Energy Conservation. Every state will receive a grant in order that they may work with families, owners of small companies, and local government officials to help them take practical steps in saving energy and switching to renewable sources. EES Programs: o stress community self-help and use local organizations and qualified experts. o deliver personalized services that are tailored to users needs. o provide maximum flexibility to states to design useful services with public involvement.	G, Grants to States to provide C,D,E, activities.	25 mill. awarded to states and territories on formula basis.	State Energy Office In Wash., D.C.: Technical Assistance Branch, Energy Extension Service, 2H-027, Forrestal Building, Wash., D.C., 202-252-2302
Conservation Education	To produce and distribute public service messages to inform the public about conservation measures; booklets and pamphlets doing the same; and curriculum materials for all educational levels.	A,E	not applicable	for specific materials and information: TIC, Oak Ridge, Tenn. 37830
Education Division	To assure and support the appropriate involvement of educational processes and institutions in implementing the NEA. This is accomplished by administering the following programs:			Forrestal Bldg., Rm 8F 055, 1000 Independence Ave., S.W., Washington, D.C. 20585 (202) 252-6482
	Faculty Development Program–provide summer workshops in energy education for elementary, high school and community college faculty.	C	1.4 mill.	
	PREFACE Program–provides minority-group members and women with tuition and cooperative work experience for the freshman year in engineering school.	B	0.25 mill.	

Title of Program	Purpose Objective–Descriptive Information	Types of Assistance	$$ FY 80	Information and Application Contacts
	Materials Development Program–provides for the development and distribution of energy education curriculum materials for use in schools.	A	not applicable	
	Special Projects–provides for the evaluation of unique and innovative proposals related to energy education.	F	not applicable	
	Voc-Tech Education–provides training strategies with community colleges, secondary and post secondary vocational/technical schools and technician training programs in industry and labor unions. This is accomplished through conferences, workshops and teacher training seminars and special projects.	A,C,E,G,F	not applicable	DOE-Education Programs Division, 8G-031, Washington, D.C. 20585 (202) 252-6491
Training, Information and Education Branch Office of Solar Programs, DOE	To accelerate the commercialization of solar energy through training, information, and education program. Specific programs include dissemination of a K-12 solar energy curriculum, solar installer training programs for industry, community college, and voc. school instructors. Solar index, and a series of workshops for the financial community.	A,C,E	2 mill.	Training, Information, and Education Program. Conservation and Solar Energy, 5G-098 Forrestal Bldg., Wash., D.C. 20535 (202) 252-8103
Agency: DEPARTMENT OF EDUCATION				
Energy and Education Action Center	Convenes conferences, meetings and seminars with education planners, administrators and support personnel to help implement energy conservation practices in school facilities. Develops seminars, workshops and meetings with curriculum developers, teachers and personnel involved with the development of supplementary materials for energy and education. Coordinates joint programs and activities in energy and education with other government departments and agencies at the local, state and Federal levels. Servies as a clearinghouse and a National Information Hot Line to	A,C,D,F	Limited funds available for technical assistance and information dissemination	Director, Energy and Education Action Center, U.S. Office of Education, Room 514, Reporters Bldg., 300 - 7th Street, S.W., Washington, D.C. 20202, (202) 472-7777

Title of Program	Purpose Objective–Descriptive Information	Types of Assistance	$$ FY 80	Information and Application Contacts
	provide information on energy conservation and related technology practices, equipment, systems, financing, curricula, teaching requirements and vocational and professional employment opportunities.			
Community Schools	To assist state and local education agencies in establishing community schools: to train personnel to plan and operate community education programs.	G, Project Grants (Contracts)	3.138 mill.	Director, Community Education Program, Bureau of Occupational and Adult Education, Office of Education, Washington, D.C., 20202, (202) 245-0691
Career Education State Allotment Program	To enable State and local education agencies to implement career education in elementary & secondary schools.	G	18.7 mill.	State Coordinators in each State Department of Education
Vocational Programs for Persons with Special Needs	To provide vocational education programs for disadvantaged persons who have not succeeded in regular programs	G, Formula Grants	20 mill.	Regionally or locally: HEW regional offices in D.C.: Director, Division of Vocational and Technical Education, Bureau of Occupational and Adult Education, OE, Wash., D.C. 20202, (202) 245-3488
Vocational Education State Advisory Councils	To advise the state board for vocational education on the development and administration of state plans, to evaluate vocational education programs, services, and activities.	G Formula Grants	5.066 mill.	Director, Division of Vocational and Technical Education, Bureau of Occupational and Adult Education, OE, Wash., D.C., 20202, (202) 245-3488
Teacher Corps	To strengthen education opportunities available to children in areas having concentrations of low-income families, *to encourage colleges and universities to broaden their teacher preparation programs* and to encourage higher education institutions and local education agencies to *improve training and retraining* programs for teacher and other education personnel.	C,E,G, Project Grants Contracts	37.5 mill.	Director, Teacher Corps, OE, Washington, D.C. 20202, (202) 245-0355

Title of Program	Purpose Objective–Descriptive Information	Types of Assistance	$$ FY 80	Information and Application Contacts
Libraries and Learning Resources	To help provide school library resources, textbooks, and other instructional equipment, and minor remodeling; testing, counseling, and guidance services in elementary and secondary schools.	G, Formula Grants	171 mill.	Office of Libraries and Learning Resources, Bureau of Elementary and Secondary Education, OE, Washington, D.C. 20202, (202) 245-2488
Environmental Education: OE (Projects)	The Environmental Education Program provides grants to public and private non-profit organizations, agencies and institutions. These grants support developmental, demonstration, and minigrant projects that improve education about environmental issues as these relate to the quality of life.	A,C,G Project Grants		Office of Environmental Education, Bureau of School Improvement, OE, Washington, D.C. 20202, (202) 245-9231
Improvement in Local Educational Practices	To provide assistance to local educational agencies to improve their educational practices including the development of: effective programs for children with special needs; activities to improve the achievement of children in basic skills; programs to extend the educational process beyond the school building through the use of community resources, and the implementation of professional development programs for instructional personnel and administrators.	Formula Grants	197.4 mill.	Bureau of Elementary and Secondary Education, Division of State Educational Assistance Programs, OE, Washington, D.C. 20202, (202) 245-2595
Vocational Education Research	To provide support for (1) a National Center for Research in Vocational Education and (2) projects for research curriculum development, and demonstration in vocational education.	F,G, Project Grants (Contracts)	6.750 mill.	Director, Division of Research and Demonstration, Bureau of Occupational and Adult Education, OE, Washington, D.C. 20202, (202) 245-9634
Grants to States for State Student Incentives	To encourage states to increase their appropriations for grants to needy students or to develop such grant programs where they do not exist (grants are on a matching 50-50 basis)	B Formula Grants	76.750 mill.	Regionally or Locally: Program Announcement and List of State Student Scholarship or Assistance Agencies available in OE Regional Offices. In D.C.: Director, State Student Incentive Grant Prgm. (202) 472-4265
Adult Education (Grants to States)	To provide adult basic education programs, up to 12th grade competency.	A,C,G Formula Grants	100 mill.	Director, Division of Adult Education Program, Bureau of Occupational and Adult Education, OE, Wash., D.C. 20202, (202) 245-2278

Title of Program	Purpose Objective–Descriptive Information	Types of Assistance	$$ FY 80	Information and Application Contacts
Educational Television and Radio Program	To support the development production, evaluation, dissemination and utilization of innovative educational television and radio programs designed for broadcast and/or non-broadcast uses to help children, youths, or adults to learn.	Project Grants (Contracts)	6.25 mill.	Education Technology Development Branch, Office of Libraries and Learning Resources, Bureau of Elementary and Secondary Education, OE, Washington, D.C. 20202 (202) 245-9228
Agency: DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT				
Section 701–Comprehensive Planning Assistance	To encourage comprehensive community planning assistance for such community activities as housing rehabilitation, energy and building, conservation and expansion of housing and housing opportunities, increased public services. This is mainly a planning assistance program for communities which would include planning for schools. Funds cannot be used for physical construction activities. Training of staff in energy conservation, etc., is also funded. Funds cannot go directly to educational institutions.	C,E,F,G Matching grants	$57 mill.	Regional and area HUD offices. Central Office: Dr. Melvin Wachs, Office of Community & Program Coordination, Dept. of HUD, Rm 7262, Wash., D.C. 20410, (202) 755-6201

Notes

[1] Shirley Boes Neill, *School Energy Crisis: Problems and Solutions* (Arlington, VA: American Association of School Administrators, 1977), pp. 7-16.

[2] *Ibid.*

[3] Gallup Poll, "Energy Shortage 'Critical' to 1 in 4," June 6, 1977, and Gallup Poll, "Few Fully Informed on Energy Problem," May 1, 1977. Cited in Education Commission of the States, *1979 Recommendations* (Denver, CO: ECS Policy Committees, 1979), p. 1.

[4] National Assessment of Education Progress, *Energy Knowledge and Attitudes: A National Assessment of Energy Awareness Among Young Adults* (Denver, CO: Education Commission of the States, December 1978), pp. 1-39.

[5] *Schools and the Energy Crisis* (Washington, D.C.: National School Boards Association, 1973-3) pp. ii-iv.

[6] American Association of School Administrators Survey, "Energy Use Study," August 1979. Cited in *ERIC-SMEAC Information Bulletin* (Autumn 1979), p. 6.

[7] Questions and Answers on Energy Conservation in Schools (n.p.: n.p., 1978).

[8] United States Department of Energy Office of Consumer Affairs, *Professional Energy Careers* (Washington, D.C.: GPO, August 1979), pp. 1-45.

[9] "West Deptford High on Conservation," *The Science Teacher* (November 1979), p. 16. This project was implemented in West Deptford High School, Westville, New Jersey.

[10] Thomas Geier and James R. Wailes, "Solar Energy: Classroom Reality," *Science and Children* (September 1979), pp. 19-20. And telephone interview with Thomas Geier, teacher at Burke Elementary School, Boulder, Colorado, June 23, 1980.

[11] Battelle Memorial Institute's Columbus Laboratories Study, Spring 1979. Cited in *Energy Education* 2 (1980), p. 4.

[12] Herbert L. Coon and John F. Disinger, eds., *Energy Education Programs: High School Programs and Resources* (Columbus, OH: ERIC Clearninghouse for Science, Mathematics, and Environmental Education, April 1979), p. 9. This project was implemented in Walnut Springs Junior High School, Westerville, Ohio.

[13] Allison E. Murphy, "The Energy Crisis: A Creative Approach," *Science and Children* (April 1977), pp. 9-11. This project was implemented in Harrison Avenue School, Roseland, New Jersey.

[14] Herbert L. Coon and John F. Disinger, eds., *Energy Education Programs: Elementary School Programs and Resources* (Columbus, for Science, Mathematics, and Environmental Education, April 1979), p. 9. This project was implemented in Jefferson Elementary School, Pocatello, Idaho.

[15] "Energy Aware," *The Science Teacher* (March 1979), p. 20.

[16] Coon and Disinger, *Elementary Schools*, p. 12. This project was implemented in Washington County Elementary School, Springfield, Kentucky.

[17] Coon and Disinger, *High Schools*, p. 15. This project was implemented in South Florence High School, Florence, South Carolina.

[18] *Ibid.*, p. 13. This project was implemented in Upper Dublin Senior High School, Fort Washington, Pennsylvania.

[19] Fred C. Niedermeyer and Ernest J. Roberson, "Captain Power and Power Quiz: Two New Energy Education Programs," *The Elementary School Journal* (May 1979), pp 259-268.

[20] Jefferson County Board of Education, Birmingham, Alabama, Policy File #341.213.

about NSBA . . .

The National School Boards Association, headquartered in Washington, D.C., is a not-for-profit organization whose primary mission is the general advancement of education through the unique American tradition of local citizen control. In this way, public elementary and secondary school policy is decided by local school board members, the vast majority of whom are elected and are directly accountable to the community. NSBA promotes the quality of education through services to state associations of local school boards and to local school boards; by serving as liaison with other education organizations and governmental authorities; and by increasing school board impact on federal education laws and regulations, and in court cases relating to education.

Active Members of NSBA are the 49 state associations of local school boards, the Hawaii State Board of Education, plus the boards of education in the District of Columbia and the Virgin Islands. Nearly 1,350 local district school boards are NSBA Direct Affiliates.

NSBA represents the interests of school boards before Congress; provides development programs for school board members; provides school district management services, and offers to the school board movement a variety of other services including the annual convention.

The award-winning monthly magazine, *The American School Board Journal*, has been owned and published by NSBA since 1967. Publication of a new monthly magazine, *The Executive Educator*, began in January 1979.

Three NSBA council-type groups and two forum groups play a significant role in the National School Boards Association:

- The Council of Urban Boards of Education focuses on serving the needs of urban school boards.
- The Council of School Attorneys focuses on issues of school law.
- The Conference of School Board Negotiators serves those engaged in labor-management relations.
- The Forum of Federal Program Coordinators focuses on the administration of federally funded programs.
- The Large District Forum focuses on the unique needs of major non-urban school districts.

NSBA also maintains liaison with other groups, including the National Caucus of Black School Board Members and the National Caucus of Spanish-speaking Board Members.

Founded in 1940, NSBA made its first headquarters in Chicago and later moved its offices to suburban Evanston, Illinois, to accommodate the organization's continuing growth and scope of activities. In 1966, the Office of Federal Relations was established in Washington, D.C., and in 1976, the entire NSBA operations moved into new consolidated headquarters in Washington, D.C.

NSBA represents about 95,000 of the nation's school board members who, in turn, represent more than 97% of all public school children in the U.S.

NSBA policy is determined by a 132-member Delegate Assembly composed of active school board members from across the country. Translating this policy into action programs is a Board of Directors consisting of 20 members. The executive director administers NSBA programs, assisted by a 95-member staff.